

EXPLANATION OF THE PLATES.

PLATE XXIII.

- Fig. 1. *Cæilia buckleyi*, Blgr., p. 407.
 1 a. " " Side view of head, $\times 3$.
 2. *Rhinatrema bicolor*, Blgr., p. 407.
 2 a. " " Side view of head, $\times 2$.
 2 b. " " Lower view of anterior end.
 2 c. " " " " posterior end.
 3. *Scolecormorphus kirkii*, Blgr., p. 413. Upper view of anterior end.
 3 a. " " Side view of head, $\times 2$.
 3 b. " " Lower view of anterior end.
 3 c. " " " " posterior end.

PLATE XXIV.

- Fig. 1. *Geotrypetes petersii*, Blgr., p. 408. Upper view of anterior end.
 1 a. " " Side view of head, $\times 2$.
 1 b. " " Lower view of posterior end.
 2. *Cryptopsophis multiplicatus*, Blgr., p. 409. Upper view of anterior end.
 2 a. " " Side view of head, $\times 2$.
 2 b. " " Lower view of posterior end.
 3. *Siphonops hardyi*, Blgr., p. 412.
 3 a. " " Side view of head, $\times 3$.
 4. *Bdellophis vittatus*, Blgr., p. 412.
 4 a. " " Side view of head, $\times 2$.

2. On a new Species of the Genus *Erinaceus* from Somaliland. By JOHN ANDERSON, M.D., LL.D., F.R.S., F.Z.S., &c.

[Received May 20, 1895.]

The Hedgehog, the subject of this description, is an adult female. It was living when presented to this Society on the 24th April, 1893, by Mr. H. W. Seton-Karr, F.Z.S., but died soon afterwards. When it was received at the Gardens it was regarded as an example of *E. albiventris*, Wagner¹, a species which is distinguished from all other members of the genus by having only four digits on the hind foot. The Somali Hedgehog, however, has five well-developed toes.

Mr. Sclater, being aware that I was interested in this genus, in connection with my Egyptian researches, was so good as to entrust the specimen to me for description, now some time ago.

I may mention that I have examined all the Hedgehogs preserved in the Museums of Paris, Frankfort on the Main, Munich, Berlin, and London², and, owing the kindness of Mr. Ludwig Lorenz, have

¹ Cf. Sclater, P. Z. S. 1893, p. 435.

² I embrace this opportunity to express my indebtedness to Professor R. Hertwig, Munich; Professor Dr. Boettger, Frankfort on the Main; Professor Möbius and Mr. Paul Matschie, Berlin; Prof. A. Milne-Edwards, Paris; and to Mr. Oldfield Thomas, for the facilities they have afforded me to study the specimens under their respective charges.

had the opportunity of examining, in London, some of the specimens described by Fitzinger, preserved in the Vienna Museum.

After a careful consideration of all the materials which have come under my observation, I have arrived at the conclusion that this Hedgehog from Somaliland belongs to a species new to science. I have found, in the British Museum, the skin of the body (spines only) of a Hedgehog from Taf, in Central Somaliland, which seems to be identical with it. The registered number of this specimen is 85.12.10.2.

I propose to designate the new species *E. sclateri*.

It belongs to that section of the genus in which the pterygoid fossæ are well-developed, and in which the pterygoids do not contribute to the enlargement of the auditory chamber of the macerated skull. The following species, besides *E. sclateri*, fall under this division, viz., *E. europæus*, Linn., *E. concolor*, Martin, *E. algirus*, Duv. & Lereboullet, *E. frontalis*, Smith, *E. auritus*, Pallas, and those which are doubtfully distinct from the last, e. g., *E. grayi*, Bennett, *E. megalotis*, Blyth, and *E. allulus*, Stoliczka; and, finally, *E. albiventris*, Wagner, in which the hallux is absent, is also a member of this group. In the second section of the genus the pterygoid fossæ almost disappear, the pterygoids being enlarged and bullate, the cavity contributing to the enlargement of the auditory chamber of the prepared skull. The Hedgehogs which present this type of cranial structure are *E. micropus*, Blyth, *E. pictus*, Stoliczka, *E. æthiopicus*, Ehrenberg, and *E. macracanthus*, Blanford.

The Hedgehogs of the first section are referable to two subdivisions, depending on the nature of the post-glenoid process of the squamous. In one that process is solid and much smaller than the mastoid, whereas in the other it is as large as the mastoid process, and concave internally, but not bullate.

The following species, viz., *E. europæus*, *E. concolor*, *E. algirus*, *E. frontalis*, *E. sclateri*, and *E. albiventris*, fall under the first of these subdivisions, and *E. auritus* and its allies already mentioned under the second.

All Hedgehogs belonging to the first subdivision, and of which *E. europæus* may be regarded as the representative, have an area from the forehead to the nape devoid of spines. Their spines are perfectly smooth, that is they have no longitudinal ridges, and are circular in transverse section. They present, however, a finely striated appearance externally, due to the cells of their cuticular covering. In the Hedgehogs of the second subdivision there is no bare area on the mesial line of the head, and the spines are covered with longitudinal ridges bearing minute nodosities.

In the second great section of the genus with dilated pterygoids the post-glenoid process of the squamous becomes greatly enlarged antero-posteriorly, and hollowed out into a large bullate cavity continuous with the auditory chamber of the macerated skull. The Hedgehogs belonging to this type of skull, and of which *E. æthiopicus* may be regarded as the highest expression, have a bare area

on the mesial line of the head and strongly ridged and nodose spines¹.

Fig. 1.

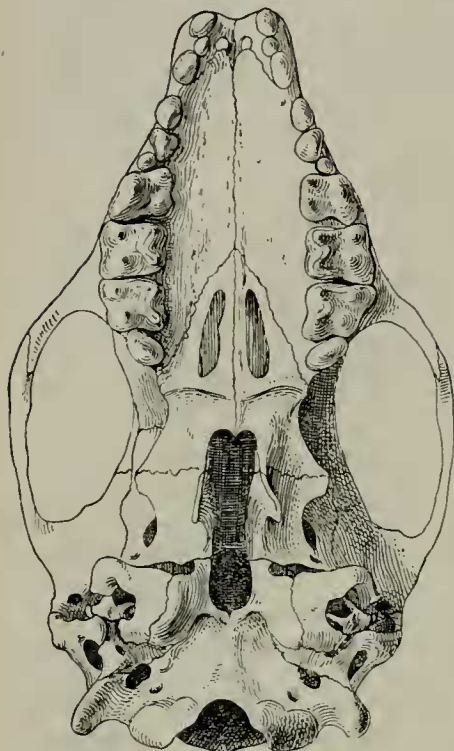
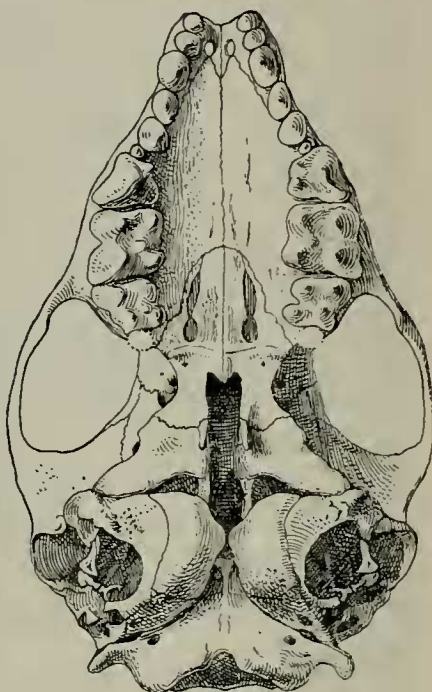
*E. sclateri*, And.

Fig. 2.

*E. aethiopicus*, Ehr.

It has been stated by Dobson, and repeated by others, that the spines of all the known species are marked by longitudinal ridges; but if the spines of *E. europæus* and its allies be subjected to microscopical examination in cross section, it will be found that they have a perfectly circular outline without any trace of longitudinal ridges, whereas if a spine of *E. aethiopicus* be treated in the same way the cross section is seen to be thrown into alternate risings and depressions, due to the presence of longitudinal ridges. The cavity of a spine of either of these groups in cross section consists of a number of inwardly projected septa enclosing chambers. In spines with ridges and furrows, the septa always correspond to the latter, *i. e.* they originate from the inner walls, whereas the ridges are outward bulgings of the chambers defined by the septa. The position of the latter (septata) is generally indicated externally by a dark longitudinal line, due to the greater thickness of the periphery of the spine opposite to a septum. It is the presence of these dark longitudinal lines that has doubtless given rise to the erroneous impression that they are ridges. The

¹ I give an enlarged view of the skull of *E. sclateri* and alongside of it one of *E. aethiopicus*, to bring out the cranial features of the two groups.

number of septa in the spines of a species is subject to considerable variation—in *E. sclateri* the lowest number being 21 and the highest 26, but, among spines of 88 specimens of the genus, I have found the variation to be even greater than this.

The fur of this species has the coarse texture of *E. europæus*, and distinctive of all the smooth-spined Hedgehogs, whereas in the ridged-spined forms the hair is soft and silky.

In *E. sclateri*, as in all the existing species of the genus, with the exception of *E. europæus* and *E. pictus*, the third upper incisor has two roots. In the former it has always one, but in the latter the condition of the teeth varies, as in three out of four skulls the third upper incisor has only one root; but this is probably due to the union of two roots, or to incipient division, as the root in these teeth is marked by a longitudinal furrow on each side. In the fourth skull the tooth has two distinct roots.

This species (*E. sclateri*) has a double-rooted canine, which is the general character of this tooth throughout the genus. In *E. europæus*, however, the canine has usually only one root; but there are exceptions, as in five out of fifteen individuals observed by me it has two roots, while in the widely different *E. pictus* one out of four specimens examined has the tooth with only one root. The instability of the rooting of this tooth is further evinced by a skull of *E. europæus* in which the canine has a single root on one, and two roots on the opposite side. In *E. concolor*, which is very closely allied to *E. europæus*, the canine has two roots, as in *E. algirus*.

In *E. sclateri* the first upper premolar, as in *E. algirus*, *E. frontalis*, *E. albiventris*, *E. æthiopicus*, and *E. macracanthus*, has two roots; whereas in *E. europæus*, *E. concolor*, *E. pictus*, and *E. micropus* it has usually one root. On the other hand, in the forms that can be grouped with *E. auritus*, such as *E. megalotis* and *E. grayi*, the first upper premolar may have either one or two roots.

The second upper premolar of *E. sclateri* has three roots, which is the general character of this tooth throughout the genus, with the exception of those species in which it is very feebly developed and occasionally shed even before the other teeth become worn, and in which it has only a single root. These species are *E. micropus*, *E. pictus*, and also *E. æthiopicus*; but in the last I have met with an example with a double-rooted second upper premolar. Among the species in which it generally has three roots exceptions also occur, as Dr. Scully has recorded an instance (*E. megalotis*) in which only two roots are present, and I have observed three similar cases in *E. grayi*, a species which with *E. megalotis* may, possibly, be ultimately regarded as only varieties or local races of *E. auritus*—an opinion which has already been expressed by Dobson.

The following are the external characters of this species:—

Snout short; ears broadly rounded, but not so high as the interaural spines. Feet well developed; pollex twice as large as the hallux. Two large pads below the wrist, placed side by side, the external pad the larger. The fifth toe twice as large as the hallux;

a large lingulate pad on the middle of the plantar surface, which is sparsely covered with hair from the heel to the pad. Claws moderately long. Tail short, about half the length of the hind feet. Spines finely striated, the longest about 18 millim. in length and 1 millim. in diameter. The inter-aural spines are not quite so long as the longest body-spines.

The apices of the spines are generally yellowish white, passing into a narrow orange-yellow band, which merges into a brown band followed by a broad yellowish or white band, the basal ends of the spines being dusky.

The face anterior to the eyes, and the chin, are nearly nude, the skin of these parts having a livid hue and sparsely covered with minute dusky hairs, those along the margin of lips being whitish. The ears also are nearly nude, of a livid hue, and are only sparsely clad with short hairs. The fore and hind limbs are thinly clothed with brownish and yellowish hairs. The lower part of the belly and the area behind it are covered with brownish fur. The head behind the livid snout and chin, the sides of the body below the spines, the throat, chest, and upper part of the abdomen are all yellowish white.

	millim.
Snout to vent	122·0
Vent to tip of tail	14·5
External meatus to snout	41·0
Snout to eye	21·5
Height of ear	24·0
Length of fore foot	18·0
„ of hind foot	28·5
„ of pollex	2·5
„ of hallux	1·6

The skull of *E. sclateri* is much smaller than that of *E. frontalis*, Smith, the only species, next to *E. algirus*, with which it can be compared, but it is more closely allied to the former than to the latter. The difference in size between the skull of the British Museum specimen of *E. frontalis*, Smith (*E. diadematus*, Dobson, but not of Fitzinger), which is a male, and that of *E. sclateri*, which is a female, is greater than mere sexual dissimilarity would account for. It should be viewed in connection with the differences that exist between the two animals when their external characters are studied, and which are such that I have had no course left me but to regard them as specifically distinct.

In *E. frontalis* the spines between the ears instead of being rather shorter than the body-spines, as in *E. sclateri*, are decidedly longer and form an eminence between the ears. It has only a single large pad below the wrist, whilst in *E. sclateri* there are two placed side by side. The hind foot of *E. frontalis* has an acutely pointed, well-developed, nipple-like tubercle, opposite to the hallux, whereas in *E. sclateri* there is a broadish flat lingulate pad in a similar position. The ears also of *E. frontalis* are

not so rounded as those of *E. sclateri*. The longer spines of *E. frontalis* have exceedingly narrow yellowish tips, with a very broad dark brown band below them, so that the animal has a dark colour, almost like *E. collaris* of India; whereas in *E. sclateri* the spines are broadly tipped with white succeeded by a brown band, but not so broad or dark as in *E. frontalis*, so that the coloration of this Hedgehog is nearly white, but with an orange-brown tint. In *E. frontalis* the face from behind the angle of the mouth, through the eye, and between the eyes to the nose is russet-brown. The shoulder, fore limbs, a band across the chest, the body, and hind limbs are dark russet-brown; the remaining parts, viz., the forehead, the front of the ears, the side of the neck, and the chest behind the brown pectoral band, are white. By these differences in coloration the two species are at once distinguished from one another, while their specific distinctness is established by the other structural dissimilarities already enumerated.

This species is only known from Somaliland.

This genus is represented in Africa by six species, viz., *E. algirus*, Duv. & Lereboullet, *E. frontalis*, A. Smith, *E. sclateri*, *E. albiventris*, Wagner, *E. athiopicus*, Ehr., and *E. auritus*, Gmelin; and the following is their synonymy and distribution:—

1. ERINACEUS ALGIRUS, Duv. & Lereb.

Erinaceus algirus, Duv. & Lereboullet, Mém. de la Soc. du Mus. d'Hist. Nat. de Strasbourg, iii. (1840) pp. 4–5; Dobson, Monogr. Insect. pt. i., Jan. 1882, p. 12 (external characters only); Lataste (F.), Act. Soc. Bordeaux, xxxix. (1885) p. 200; Explor. Sc. de la Tunisie, Cat. Crit. des Mammif. 1887, p. 5, et Suppl. pp. 39–41.

Erinaceus krugi, Peters, SB. Ges. naturf. Fr. Berlin, 1877, p. 78; Dobson, op. cit. pp. 11, 12.

Erinaceus fallax, Dobson, op. cit. pp. 9, 10.

Erinaceus deserti, Dobson, op. cit. pp. 12, 13 (cranium).

Distribution. Tripoli, Tunisia, Algeria, and Marocco (Tetuan).

2. ERINACEUS FRONTALIS, A. Smith.

Erinaceus capensis, Andrew Smith, Phil. Mag. & Annals of Phil. vol. ix. Jan.–June 1831, pp. 61, 62 (nomen nudum).

Erinaceus frontalis, Andrew Smith, South Afr. Quart. Journ. vol. i. (1830) no. 5, Oct. 1831, p. 10; ibid. vol. ii. Dec. 1833, p. 61; Ill. of South African Zoology, 1849, plate iii. (♀); Bennett, Proc. Zool. Soc. ii. (1832) p. 193; Wagner, Säugeth. Suppl. vol. ii. (1841) p. 21; Fitzinger, SB. Ak. Wien, lvi. 1867, p. 854.

Erinaceus capensis, Smith, T. Smuts, Diss. Zool. Enum. Mamm. Cap. 1832, p. 8.

Erinaceus diadematus, Dobson, op. cit. p. 10 (nec *E. diadematus*, Württemb., Fitz.).

Distribution. South-western Africa, Benguella to the Cape of Good Hope.

3. *ERINACEUS SCLATERI*, n. sp.

Distribution. Somaliland.

4. *ERINACEUS ALBIVENTRIS*, Wagner.

Erinaceus albiventris, Wagner, Säugeth. Suppl. vol. ii. 1841, p. 22; Dobson, op. cit. p. 11.

Erinaceus pruneri, Wagner, Säugeth. Suppl. vol. ii. 1841, p. 23.

Peroëchinus pruneri, Fitz. SB. Ak. Wien, t. lvi. 1867, p. 856.

Peroechinus albiventris, Fitz. SB. Ak. Wien, t. lvi. 1867, p. 857.

Erinaceus heterodactylus, Sundevall, Vetensk.-Akad. Handl. (1841), Stockholm, 1842, p. 227.

Erinaceus diadematus, Prinz Paul, Rüppell, Mus. Senck. t. iii. (1845) p. 159 (nomen nudum); Fitz. SB. Ak. Wien, t. lvi. 1867, p. 853.

Erinaceus adansoni, de Rochebrune, Bull. Soc. Philom. Paris, (7) t. vii. 1883, p. 7.

Distribution. Senegambia across Central Africa, southwards to Ukamba and northwards to Somaliland.

This species has been obtained in the following localities:— Senegal; Saint Louis; Cape Verd; Joal; MacCarthy's Island, River Gambia; Accra, Fantee; Porto Seguro, Togo; Gaboon; Kitui, Ukamba; Tabora; Kasé; Kilima Njaro; Wakilomi, District of Maka; Central Somaliland; Sennaar; Kordofan; and region of Upper Nile.

5. *ERINACEUS ÆTHIOPICUS*, Ehrenberg.

Erinaceus æthiopicus, Ehr. Symbolæ Phys. Decas ii. 1832.

Erinaceus auritus, Rüppell (non S. G. Gmelin), Neue Wirbelth. 1835, p. 40, in part; Tristram, Survey of West Palestine, 1884, p. 24.

Erinaceus senaarensis, Hedg. Isis, 1839, p. 5.

Erinaceus brachydactylus, Wagner, Säugeth. Suppl. ii. 1841, p. 24.

Hemiechinus pallidus, Fitzinger, SB. Ak. Wien, 1867, p. 866.

Erinaceus platyotis, Dobson (nec Sundevall), op. cit. p. 12.

Erinaceus deserti, Loche, Cat. Mammif., &c., de l'Algérie, 1858, p. 20; Dobson, op. cit. pp. 12, 13 (nec cranium); Lataste, Act. Soc. Bordeaux, xxxix. 1885, p. 202; Explor. Sc. de la Tunisie, Cat. Crit. des Mammif. 1887, p. 5, et Suppl. pp. 39–41.

Erinaceus algirus, Dobson, op. cit. p. 12 (cranium).

Distribution. Upper Nile Valley, Sennaar to Abyssinia, the Red Sea littoral (Suakin), and northwards to Nubia (Dongola).

6. *ERINACEUS AURITUS*, S. G. Gmelin.

Erinaceus auritus, S. G. Gmelin, Nov. Comment. Petrop. xiv. 1770, p. 519, tab. xvi.; Pallas, ibid. p. 573, tab. xxi. fig. 4; Geoffroy St.-Hilaire & Audouin, Descr. de l'Égypte, Hist. Nat. ii. (1827) pp. 737–739, pl. 5. fig. 3; Audouin, ibid. pp. 745, 746, Suppl. pl. i. (skull and teeth); Dobson, Monogr. p. 16.

Erinaceus libycus, Hempr. & Ehr. Symb. Phys. Decas ii. 1832; Dobson, Monogr. p. 16 (nec syn.).

Erinaceus hypomelas, Brandt¹, Bull. Ac. St. Pétersb. 1836, p. 32.

Erinaceus platyotis, Sundevall², Vet.-Ak. Handl. Stockholm, (1841) 1842, p. 232.

Erinaceus aegyptius, Geoffroy³, Rüppell, Mus. Senck. iii. 1845, p. 159.

Erinaceus frontalis, Dobson (nec *E. frontalis*, A. Smith), Monogr. p. 18.

Erinaceus brachydactylus, Tristram (not Wagner), Survey of Western Palestine, 1884, p. 25; Hart, Fauna & Flora of Sinai Petra, &c. 1891, p. 238, pl. i. fig. 2.

Distribution. Lower Egypt; Sinaitic Peninsula; Palestine; Cyprus; Turkey in Asia to Kirghis Steppes.

In Africa it is confined to Lower Egypt.

3. Note on the Structure and Habits of the Sea-Otter

(*Latax lutris*). By R. LYDEKKER.

[Received April 9, 1895.]

Through the kindness of Mr. J. Cole Hartland, of Yokohama, I have received the following notes on the structure and habits of the Sea-Otter made by Mr. H. J. Snow, who for the last twenty years has been engaged in hunting these animals and fur-seals in the Kurile Islands. As they somewhat revolutionize the current ideas as to the position of the hind limbs, I think they are decidedly worth laying before the Society.

Commenting on a reproduction of Wood's well-known figure given on page 98 of the second volume of 'The Royal Natural History,' Mr. Hartland writes me that "The fore limbs are much shorter than represented, and when on shore the chest, as far as the end of the breast-bone, has the appearance of almost touching the ground. The abdomen is raised considerably from the ground and the hind flippers are doubled back, the Sea-Otter being incapable of placing its hind flippers in the position represented in the drawing. It occurred to Mr. Snow that the illustration may have been taken from a specimen shot by himself and set up by Ward of Rochester, New York, photos of which I enclose. The attitude of this specimen is quite misleading, and not at all that assumed by the animal when on shore. Mr. Snow has had several opportunities of getting good observations of these animals when on shore—on one occasion he saw some 20 or more on a rocky point

¹ Prof. Büchner has been so good as to inform me that the spines on the head of the type are not divided into two lateral groups by an area destitute of spines, and that the spines are distributed quite as in *E. auritus*.

² I am indebted to Prof. F. A. Smith, of Stockholm, for the information that in the type there is no bare area on the mesial line of the head, and also for the opportunity to examine some of the spines of Sundevall's specimen.

³ This name is taken from the unpublished Catalogue of Mammals in the Paris Museum, by (Étienne) Geoffroy St.-Hilaire.